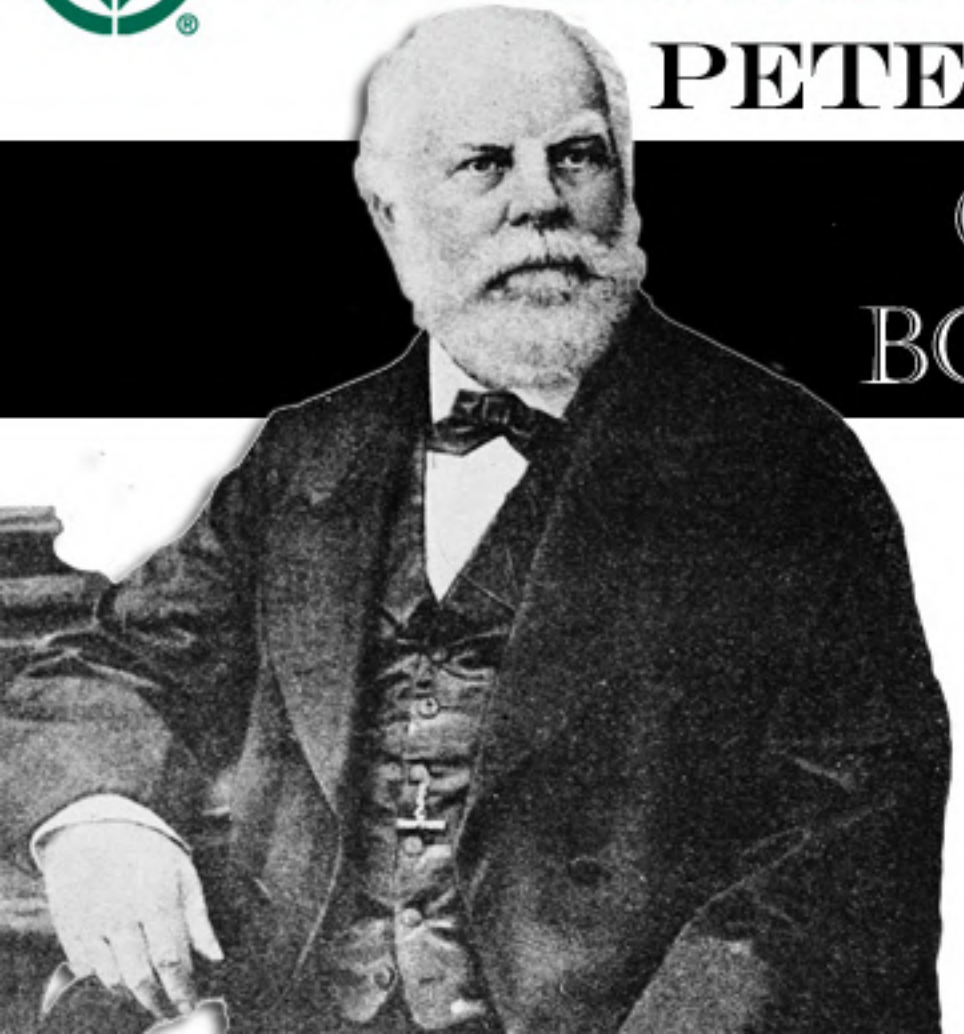
Missouri Botanical Garden

Peter H. Raven Library

George Engelmann Botanical Notebooks



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1865-1920

Cacti

Morphology & Anatomy

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Dec 1882

Cactaceae

I Inflorescentia terminalis, distincta
(Melocactus)

II Inflorescentia axillaris, floribus
plerumque singulis ~~de~~ (rarius glomeratis
(in Cereis ~~paucis~~ plurimis, ~~numerosis~~ elipsoideis
usque ad ~~plurimos~~ vel cymosis
(in plerisque Rhipsalidis).

Polyff! No — a full blooming Echinocactus
can also be said to have a terminal
inflorescence

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Lieber Freund

Ich [illegible] in den
[illegible] Report mit
"Stuff" aber es wird Dir doch
wichtiges [illegible] Pflanzen
Die sind aber sehr [illegible]
schaffen, wenn sie auf nicht
viel [illegible] nicht bohren
[illegible]

[illegible]

[illegible]

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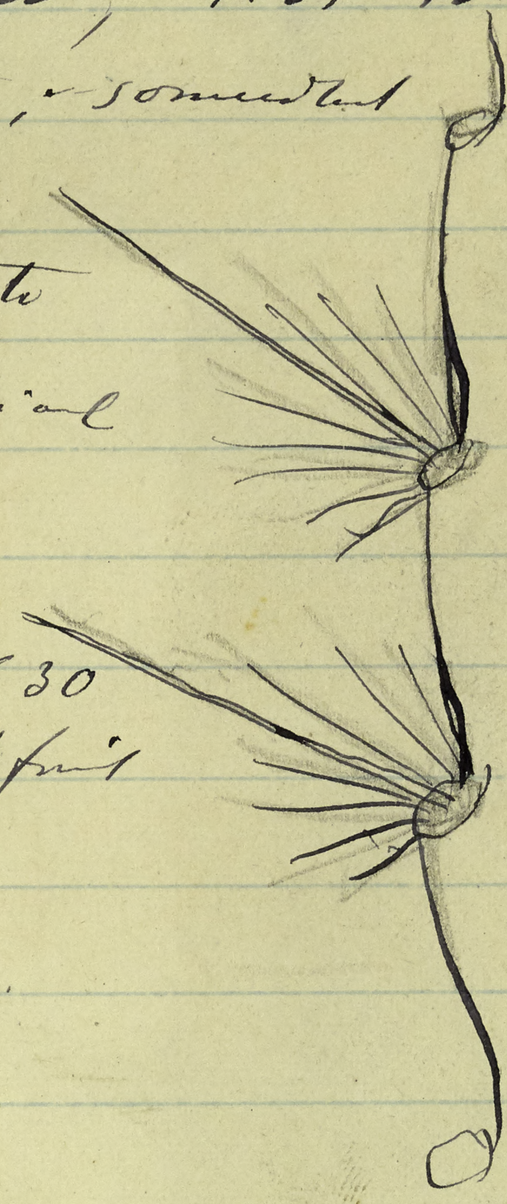
"Cereus eriophorus" West Cambridge Oct 10 1883

straggling, jointed, 12–15" diam; 8 ribbed, ribs rounded,
with very deep and sharp grooves between them, somewhat
undulate. areolæ 1 inch apart
7–8 radial and 1 usually central spine 1/2" to
1 1/2 in. long. acicular; occasionally an additional
dorsal appearance;



fruit 1–1 1/2 inch diam glabrous, yellow
with remnant persistent tubulate sepals, about 30
and long loose wool in their axils, tubercles of fruit
~~flat~~

another one, also labeled "eriophorus" has 8–9 ribs; the upper
younger ribs are quite mamillate or tuberculated, tubercles distinct;
older ones have rounded ribs with deep sharp grooves —
12–15 acicular very slender spines, stellate; all directions, 6–10"
1–3 shorter longer central ones 1–1 1/2 inches; sometimes recent accompany spines above
Unripe fruit with 60 or 70 prominent tubercles, oval areolæ with conspicuous
at last withering sepal-scales; with long loose wool in axils.
(tubercles with probably brown flattened at maturity; fruit 2" × 1 3/4".

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Cereus Martinii ex Hort Blumm H. Cambridge Oct 10 '883

branches jointed straggling, 6 angled, ribs 5–6
undulate, rounded with sharp grooves between.
short spines 1 or rarely 2, sometimes none
(young, accessory) upper one.
flowers long tubular;
fruit ovoid 5 or 20 distant, tuberculate nearly 2 in. diam.
with prominent white woolly areolæ and 1–3 stout
spines, 1–6 lines long; or some of the areolæ, or others
very short ones ½ line long

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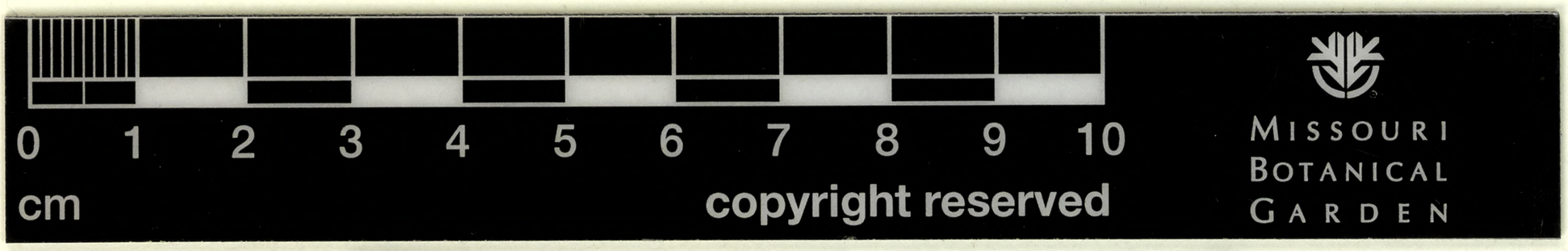


"Cereus tortuosus" (= pentagonus") Hort Cambridge Oct 10 1883

jointed, straggling, 5 angled, angles rounded cut narrow, nearly straight

1/2 inch shallow, wide; areolas about 1/2 inch in the long apart

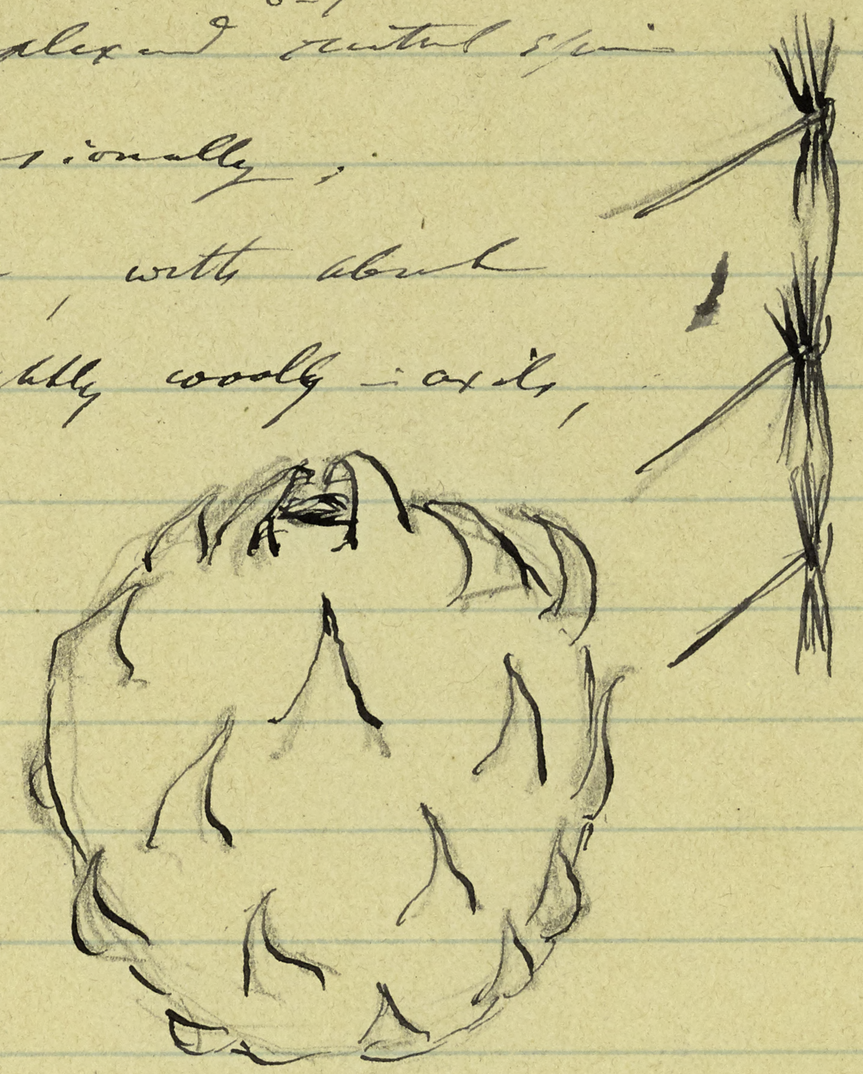
with 6-9 radial 3-4''' and one stouter longer deflexed 6-7''' central spine

areolas wool dark brown spines occasionally;

fruit 1 3/4 in dia globose, crimson, with about

25 crimson-brown scaly sepals, slightly woolly inside,

4-6 lines long, lanceolate



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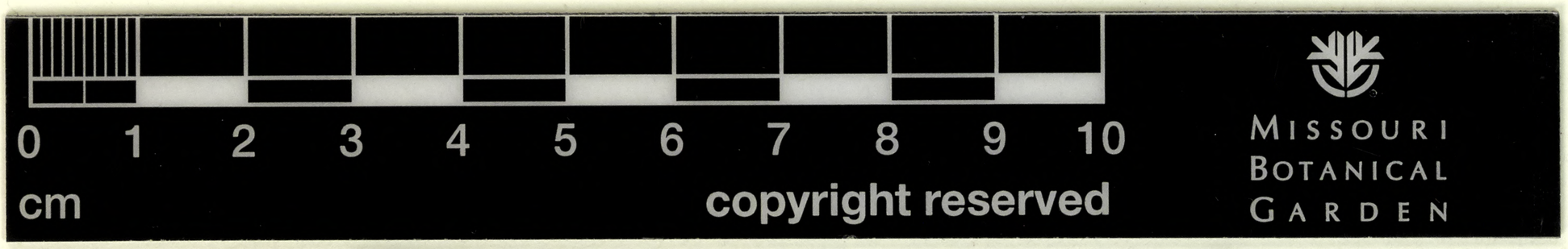

Cereus alacriportanus ? fide Hort Cambridge Oct 10th 1883

branched, jointed shoppling 18–20‴ diam. 6 ribbed, ribs indented convex
rounded, grooves deep and narrow; areolae in 3 on rib about ½"
apart, about 6–7 radial spines, 1–3 central all ½–1½" long
new ones with dark tip on upper part of areolae; fl. apparently 6" long
fruit globose 2" diam with 20–20 dry prominent tubercles; areolae of same
shape tomentose, with 2–5 sharp spines 1–3‴ long.

areolae in C. alac. fide Pfeiffer Enum p. 87 are only
4 lines apart!

Tubercles of ovary very prominent; in fruit much less so

ripe, crimson

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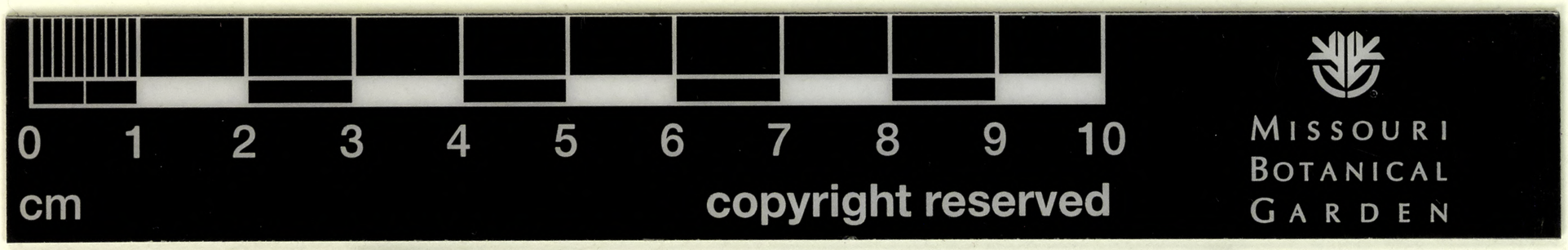
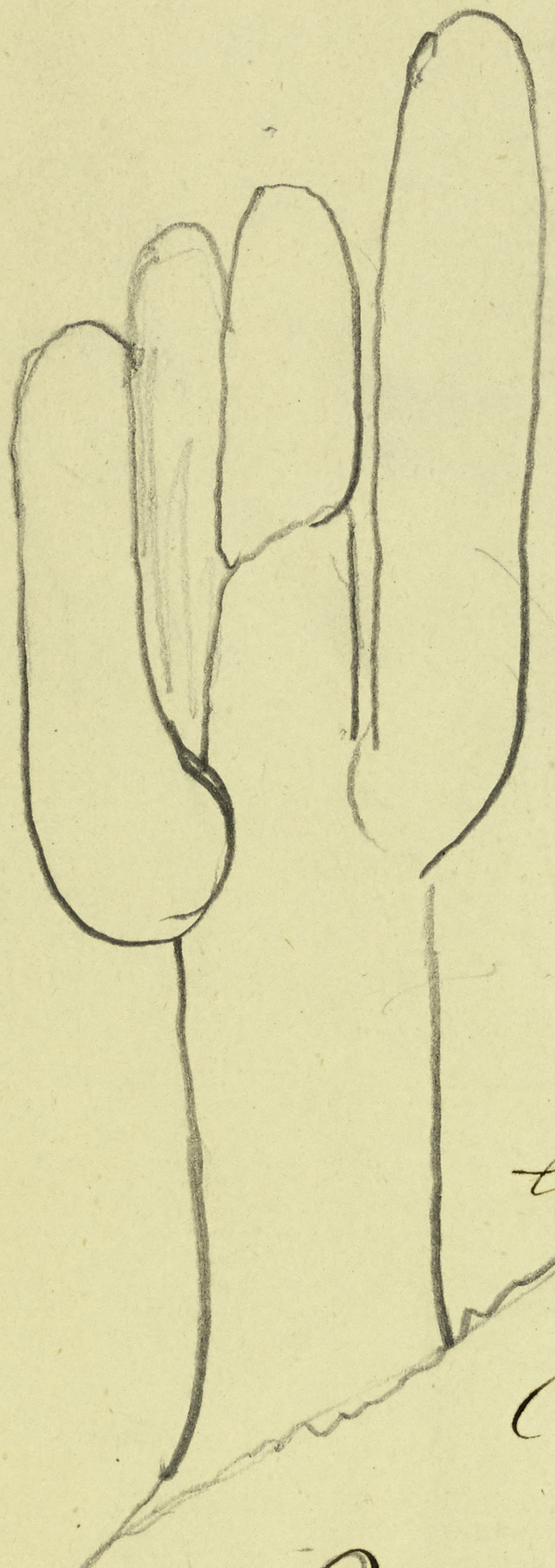


A Weber, Shipbay Aug 1883

Rio Janeiro Botanic Garden
Schwarzer
Cook Islands
255 Meinstr

Napothachtli
Cryptocereus



Weber gave this species later also the name of

Cer. Schickendantzii

(The same was on exhibition in Philadelphia 1876)

Cereus Pasacana Weber
Schickendantz mss.

8-10 Meter or even 20 m high
important (if not only) wood for Mines building in Argentina (20)

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Cereus strigosus, Hort Pfersdorff 1874

flowered; Echinopsis Eulychnia; flowers

10 inches long; distinct crown of

the exterior stamens

Cereus candicans (= C. gladiatus) is similar

to Werber 1893

Cact. Peruvian. contin.

diademata Schickendantz

Opuntia Cotamarca vel

Cer. corrugatus

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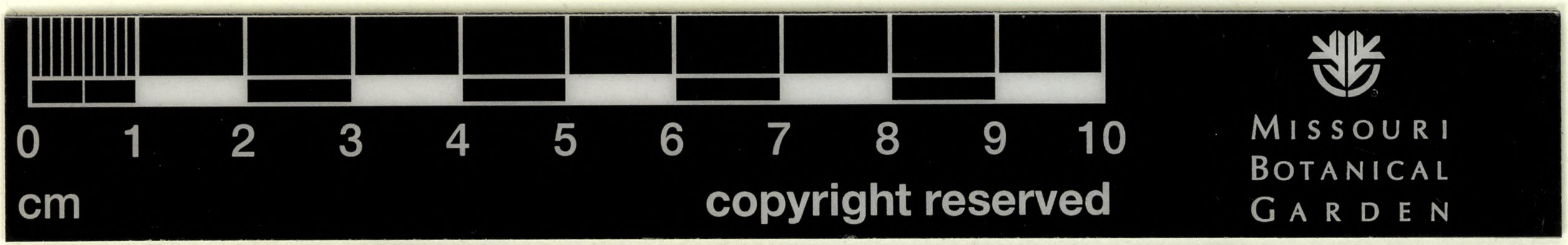

De Bary Vergl. Anatomie 1877

p. 493 Manillaria & Echinocactus have only spiral and ring tracheae (vessels and tracheids)

p. 494 Cereus and Opuntia have netted vessels

Cactaceae seem to lack the annual rings

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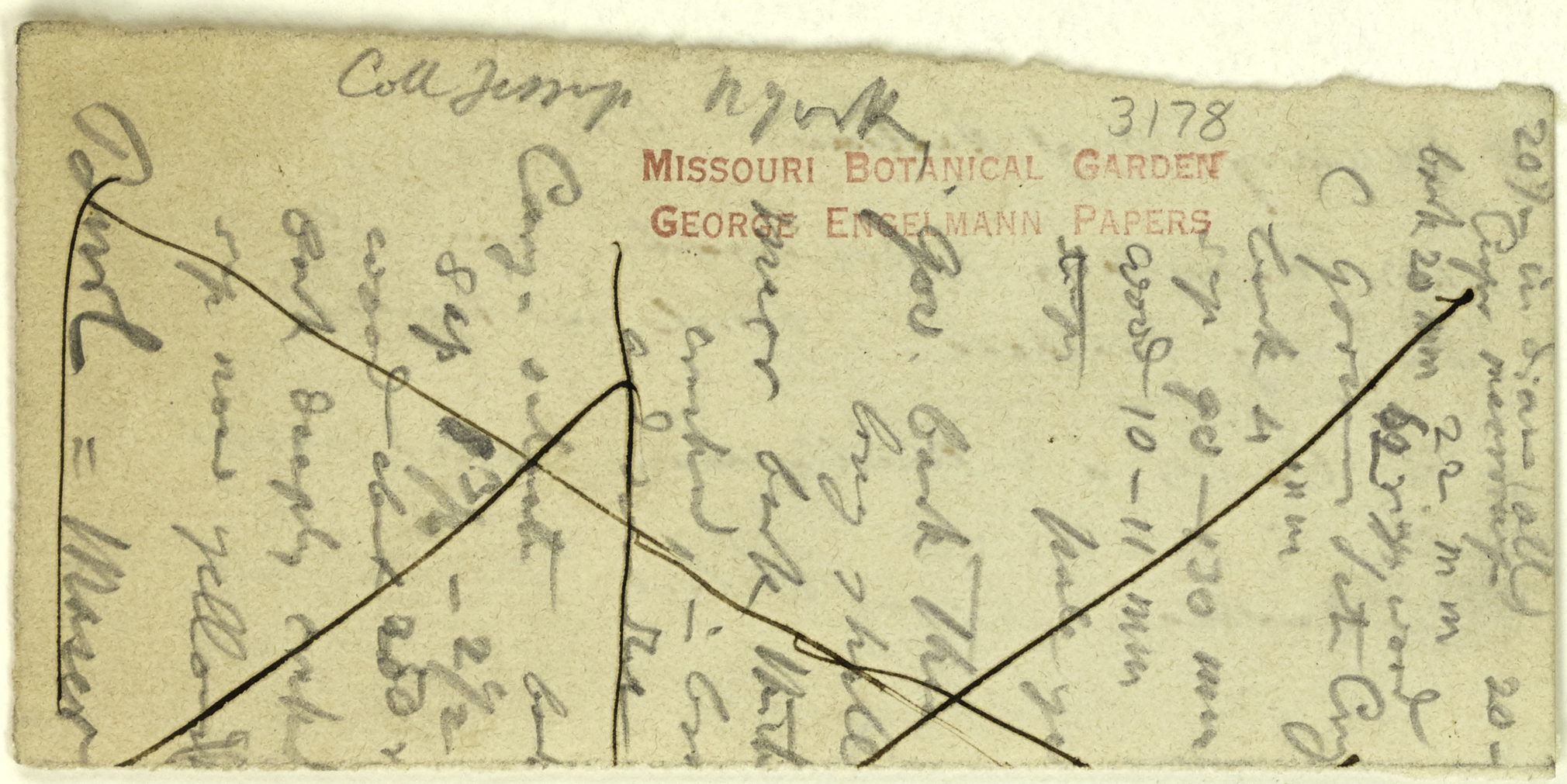

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Cereus robustus is similar
to C. grandiflorus, but stamens
continuous, no separate Corona

(A Arber 1883)

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Abnormal Inflorescence in Cereus speciosissimus.—The researches of Darwin have given to the variations and deviations of structure in organic beings, *e.g.*, the peloric blossoms of Pelargonium or Linaria, a scientific interest apart from and paramount to mere novelty of form; hence I considered the appearance of a truly axial or terminal flower on a young plant of the Cactus above-named worthy of record and study. Each of two plants struck four years ago from pieces of one and the same branch played, although diversely, a morphological freak, due perhaps to the change from the neglected, half-withered state of the parent plant to the liberal treatment I gave the offspring, which I will for brevity call respectively A and B. In March of last year each showed its first flower-bud, which in plant A was placed at the top of a quadrangular branch in as truly axial and terminal a fashion as does a pyramidal roof in the case of a Norman tower, or a finial in that of a spire. Plant B, the stronger of the two, and struck from the proximal half of the original branch, bloomed in the usual manner, *e crenis angulorum*, as per the *Botanical Magazine;* suffused in the throat of the flower with the usual flush of beautiful metallic purple, and vented its abnormality in the production of many pentangular branches, instead of the "3-4 : gon." of the *Botanical Magazine*. It was from the first most interesting to study, *pari passu*, the difference between the two plants; the peduncle in the case of A passing smoothly—*i.e.*, without scar, joint, or change of structure—into or out from the four inter-angular faces of the branch. The expanded flower differed from the normal in that the lovely purple hue was diffused over the inner petals to almost their very points—to such an extent, in fact, as to cause a photograph of the open blossom to appear white, owing to the blueness of the purple. As soon as the stigma became receptive I applied to it the pollen of C. Jenkinsoni, and the result is a fruit which is still unripe, but which shows even more plainly than did the bud and flower the departure from the normal, especially as contrasted with a fruit of C. Jenkinsoni perched in the usual sessile manner, *in crenâ anguli*. There is still, in A, no trace of cicatrix (as from possibly aborted end of branch) of joint, or of intermediate structure of any kind, but the four green sides of the branch (about half an inch in width) merge smoothly (as in fig. 36) into the rather ovate fruit; while the prickly fasciculi of the crenated edges just encroach on the berry, now about an inch across, and further dotted with prickles on raised ridges not continuous with the leaf edges. During the summer I looked up the literature of the Cactaceæ, in order to find whether, morphologically speaking, any light might be thrown upon the present case by the inflorescence of other members of the order. Epiphyllum truncatum I knew flowered terminally, yet in that plant the fruit is truly sessile upon the blunted end of the branch, not, as in my case, merged smoothly into it. I was much pleased, however, to find, *Bot. Mag.*, anno 1839, t. 3566, *re* Cereus serpentinus, the following:—"The flower is large, handsome, fragrant—terminating a joint of which it seems to be a continuation; there being no well-defined mark between the termination of the one and the commencement of the other." Yet, curiously enough, this description is contradicted by the following words in the Latin preamble:—"*Flores*

Gardeners Chronicle
Febr 24 1883

FIG. 36.—TERMINAL FRUIT OF CACTUS.

ampli, e spinarum fasciculis aut crenis angulorum orti. DC." Perhaps De Candolle had not seen the plant in flower, and used the formula applicable to most of the Cacti; yet it seems strange that the

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and that Moore used poetic licence when he wrote of the honey "that drives men mad"—the honey collected by the bees of Trebizond from the flowers of a species of Rhododendron, according to Tournefort; but if the Dahlia is rifled, and the bees have not sufficient instinct to avoid it on account of its hurtful effects on themselves, it is not probable that the poisonous Rhododendron bloom would be rejected in consequence of its being injurious to the honey eater. Wild Thyme is, I know, very much liked by bees, and we always liked when purchasing honey to get some from cottagers who lived near a certain mountain where wild Thyme abounded. Perhaps some classical recollections of Mount Hybla influenced the order given when we invariably said, "Remember you get the mountain honey." *Helen E. Watney.*

—— The following are considered very good plants for bees:—Annuals: French Poppy Limnanthes, various; Nasturtium, various; Mignonette, Sunflower. Biennials and perennials: Canterbury Bells, white Clover (very good), Wallflower, Thyme. The famous Narbonne honey is said to owe its peculiar flavour to this plant. *J. D.*

—— Your inquiring correspondent, "L. G.," will find in the following list many plants suitable for bees, some of which, in addition to their yielding honey, can be recommended for their pollen-producing

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Notices of Books.

The Rosarian's Year Book for 1883. Edited by the Rev. H. Honywood D'Ombrain. (Bemrose.)

Two portraits grace this volume—that of Mr. George Baker, of Reigate, whose genial qualities are sympathetically told, and that of Mr. E. R. Whitwell, the winner of the Amateurs' Challenge Trophy, and the prime mover of the Darlington meeting of the Society. Mr. Whitwell's success is the more remarkable from his relatively limited resources so far as number of plants is concerned, and the northern district (Durham) in which he grows them. The Rose Society may be cited in some sense in defence of special societies, for it has certainly evoked, and, better still, co-ordinated the zeal of numerous enthusiasts. It has set an example to the parent Society in not confining its operations to the metropolis, but has aroused local energy and co-operation in almost every county—it has done, in fact, what the Royal Horticultural Society should have done long ago, and what it may still do in the future. Its publications have some of them been useful to a high degree, and others have been amusing—at least to those who wrote them. The catalogue of Roses, the directions for their growth, and the various practical papers have all been useful and worthy of a national Society. The present publications, although edited by one of the secretaries, and owing its chief permanent value to the contributions of the other, is not to be looked on in the light of an official publication. This circumstance may possibly be held as an excuse for the introduction of articles in the trashy calico-Rose style which some amateurs seem to think it appropriate to use when writing about the Rose—a style in the present case rendered the more offensive by the large infusion of slang. Is there any reason why amateurs, and clerical amateurs in particular, write about the Rose in a style which they certainly would not adopt when writing of any other subject in which they took an equal amount of interest, and which they would be ready to decry as unworthy of the subject? After-dinner oratory is well enough in its place and season, provided there be not too much of it, but it is rarely intended or suited for publication next morning. And so with the literature of the Rose of the kind we have been alluding to, a little of it at the right time is a pleasant stimulant, but one that it

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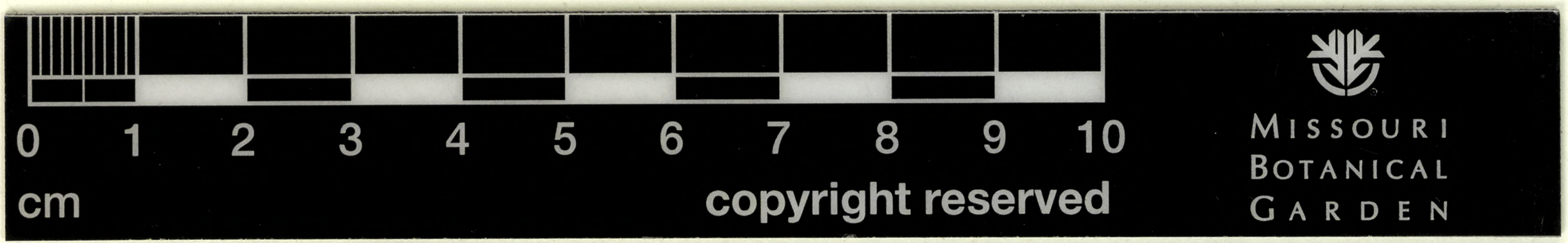
editor should not have noticed the obvious discrepancy. Taking the coloured plate and the clause in English as being correct, one wonders whether the erect Torch-Thistle Cacti may have been evolved from the (in two senses) lower forms, such as C. flagelliformis or C. serpentinus, in which case my terminal flower and fruit may present an instance of reversion or atavism, although by bud, not seminal variation. Mr. F. W. Stansfield, so well known to many of your readers, has, like myself, watched the case from the very first, and in further proof of *bona fides* I forward a stereograph taken by myself in May last, showing A the day before the bud opened grouped with sundry other plants. *H. B. Biden, Sale, Cheshire, Jan.* 29. [The terminal blooming of Cacti has now been often recorded, as by Zuccarini, Ernst, and others. Such cases are interesting as showing the share which the axis takes in the formation of the fruit. ED.]



is not desirable to repeat on all occasions. A more serious matter is the propagation of error on the part of writers well versed in some portions of their subject but retaining all the exploded "science" of half a century or a century ago, as if nothing had been learnt in the interval. Would that such writers would take a lesson from the spirit of the excellent remarks of Mr. Mawley, who, while pressing into the service the data of scientific meteorology, aptly says "That the judicious cultivator . . . will study the requirements of his plants, and disregarding all fashions, save only the weather's varying moods, endeavour always to shape his treatment to the prevailing circumstances." So writers on practical matters would do well either to shape their treatment of the subject according to the prevailing knowledge of the day, or if not conversant with it confine themselves to the results of

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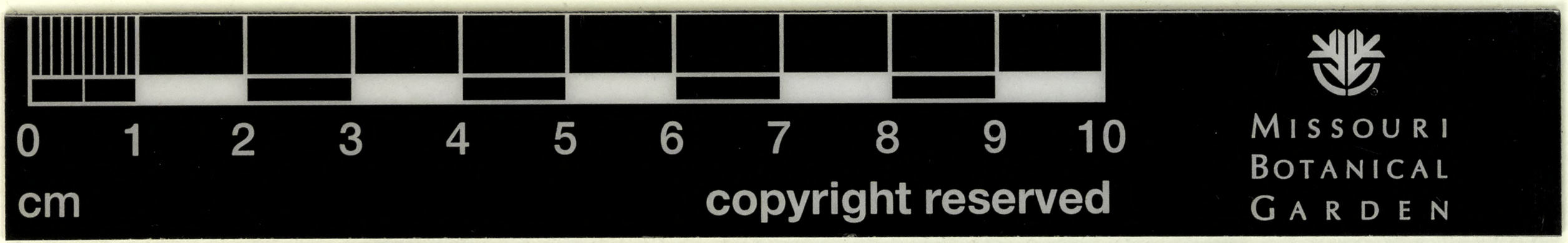

Echinocereus polycephalus Eng & Bgl.

just coming into flower (July 30) at Fish pond station on the Mojave River in dry rocky soil. None were cylindric, none had over 19 ribs, none over 9 inches diam. Many were old, and numbers dead. The ring of snowy buds pushing up between the spines is quite striking.

July 30th 1892

W. G. Wright

Echinocereus polyacanthus Mexican coll in bloom March 19 1883 fl. bright rose purple — petals beautifully fringed appears very distinct from *E. Whipplei*, which bloomed also 1882

Opuntia Davisii gelb grün Cliffs (Meusebach)

geological. It now remains to be seen what dividends the Estate will pay.

Has Conlon paid those $20.00 to you? If not will you please send me down the new lease as I propose to make him pay those $20.00 even if I have to force it by suit.

Truly Yours
E. C. Engelmann

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(cerem? Hort Berlin 1883

Echinocactus glycymorphus 6–7 ribs

only 5 spines = paucispinus

Mamillaria Ottonis is a Coryphantha

with rosa flowers, and very short

broad Mamillae

Hort Berlin
1883

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Departm

Sir:

I have the h

mail, this day, the

U. S. Geol

Opuntia corrugata Gill

Op. didematis sent by Schickendantz from
Catamarca & D. Urban
1883

Both have corrugated seeds

Section of corrugatae, ?
Cylindricae ?

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3280 65
3018 21
2624 0

Cash 245 —
1740

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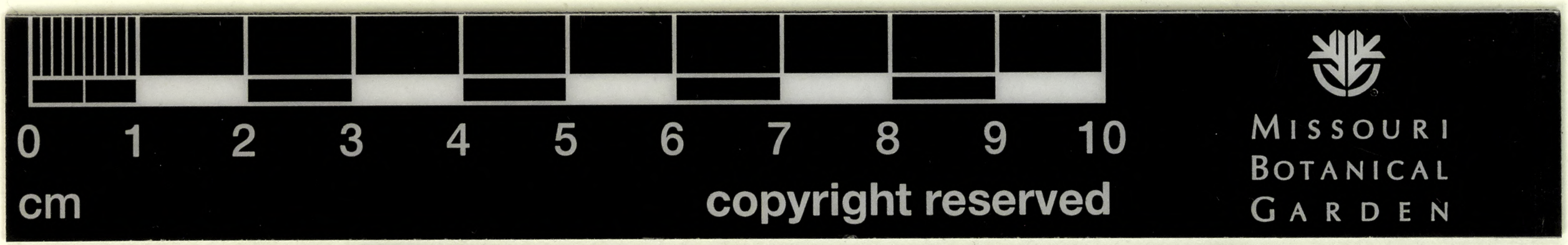


Mamill senilis

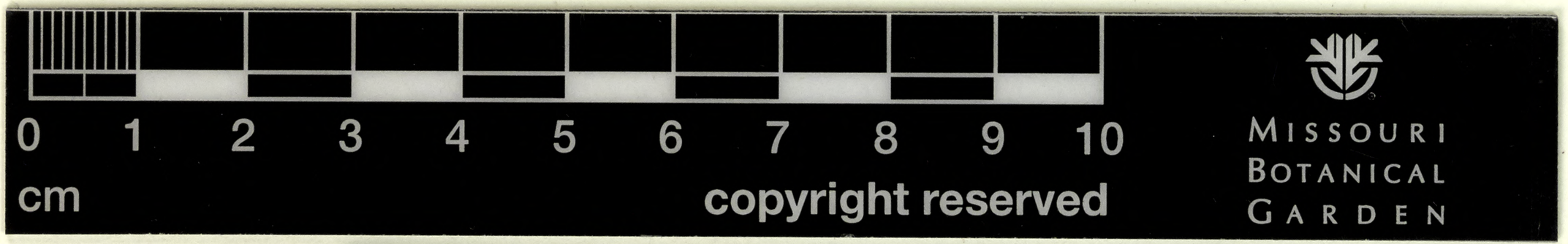
Moore in Belgique horticole. 1874 makes it a subgenus

of "Mamillopsis"

Flowers 8 days open, red or scarlet; 6-7 stigmata

~~Inner~~ stamens form a sort of Corona

Spines of 2 kinds



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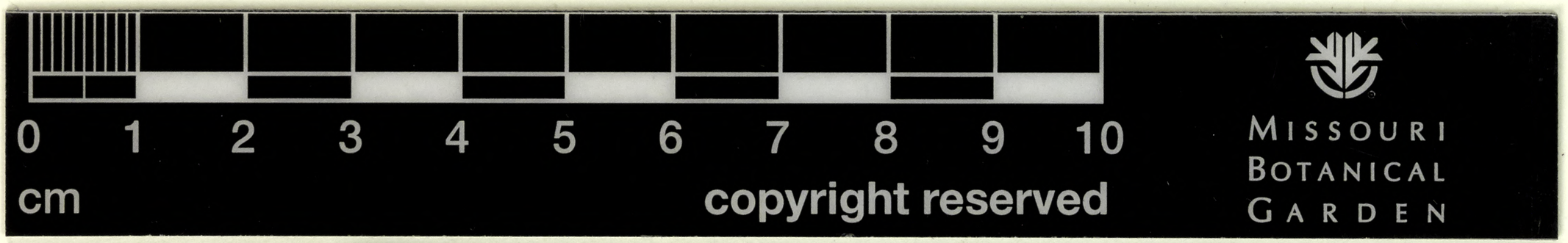

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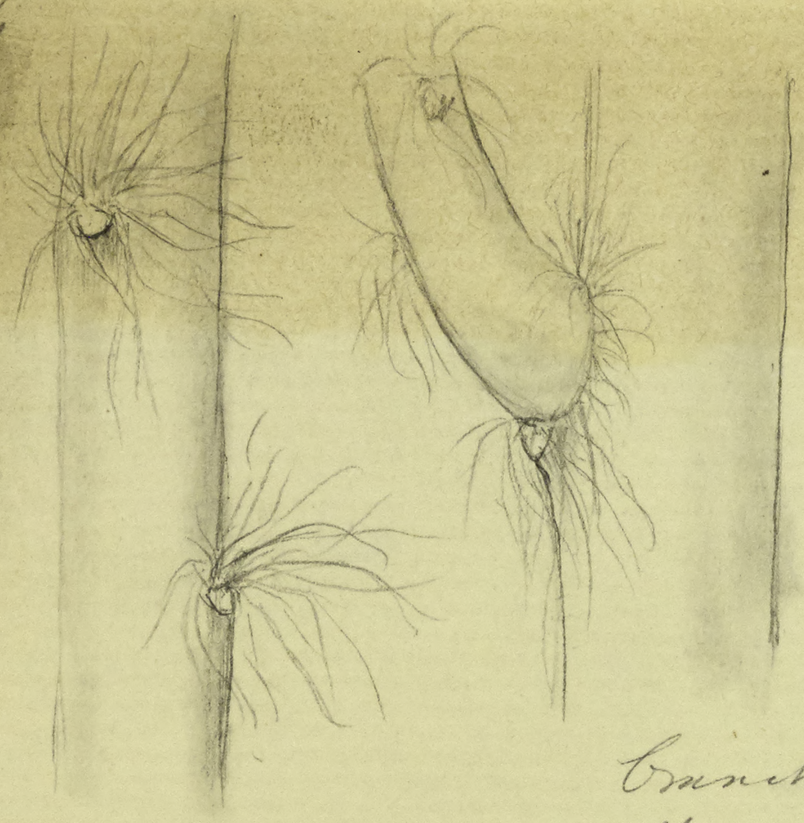
Pereskia Gilliesii Octo 1861



bunch of wool in the axil of the leaf, scar of which is visible

Branch from the centre of the areolar or axillary bunch of wool, which surrounds its base

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M. W. ALEXANDER,

SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,

ST. LOUIS.

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Cactus trunk

wood bundles often isolated

in the mass of parenchyma

are then similar to younger

Cylindrous stems with few and

isolated wood bundles, which only

later connect into rings —

In Cacti the wood bundles often

remain separate through life

(Cer. Gigantus) or unite into rings

(tubes) Cer Emoryi, or into

network (Opuntia) & retted

tubes (Cylindropuntia)

Jan 14 1874

See Gray Struct Bot p. 73

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Sept 1882

We have two distinct areolae in most Cactaceae, a sterile (mostly aculeiferous) and a fertile florifera one; the latter, when distinct is always above the former one.

In Mamillaria the two are distant from one another, the first, aculeifera one is on top of the tubercle (the tubercle is a pulvinus) the florifera at its base or rather in its axil

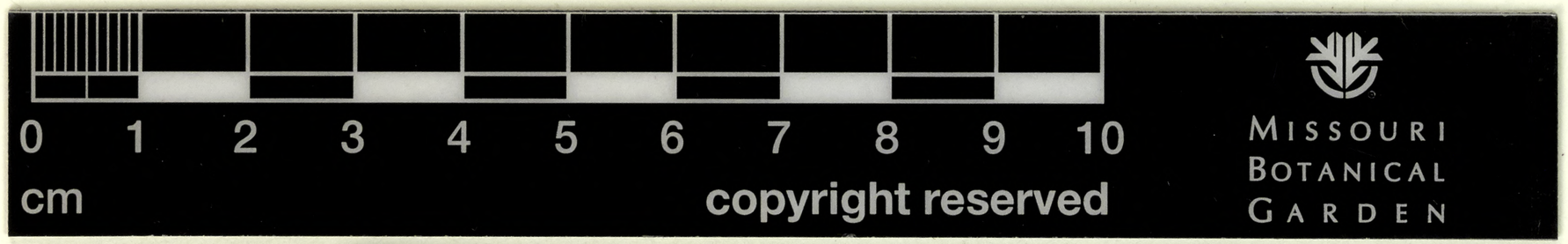
In Echinocactus the two areolae are contiguous

In Cereus there is no distinct regular florifera areola, but the flower is formed above the aculeifera or sterile areola

In Opuntia both forms of areolae are not distinguished, the flower is produced from the centre of the spiniferous areola

In Rhipsalis (and Epiphyllum) the florifera and the aculeifera areolae are distinct and separated from one another; the sterile part of the plant bears only aculeifera areolae and the spadix only florifera ones. There is a transition zone (always?) where contiguous to and above the aculeifera areola a second areola with much wool, and slender red bristly spines appear; a little higher up the aculeifera areola disappears, its spines becoming weaker, and the florifera areolae with their dense wool and slender (often red) bristles stand alone, close together, bearing the flowers in their centre.

Rhipsalis has like Opuntia probably only one areola, which bears a few scales (offsets) and the flowers.



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